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APRIL 1925



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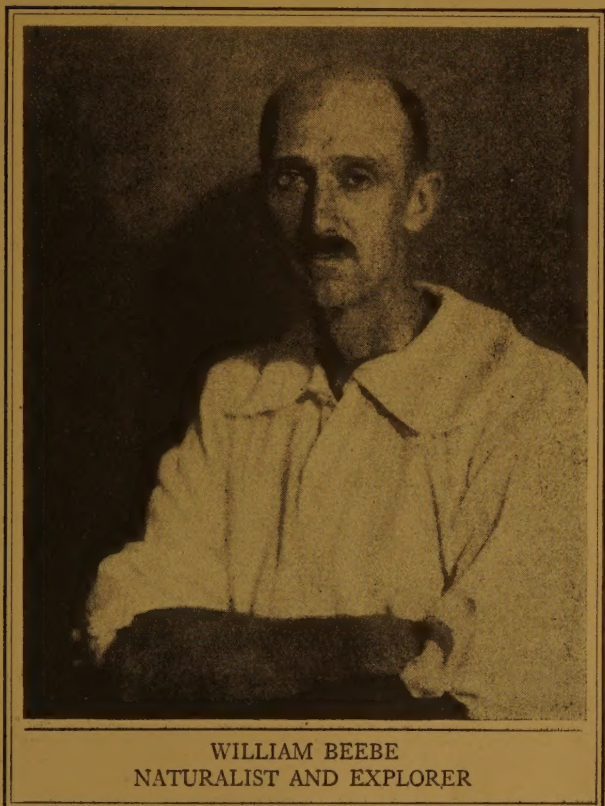
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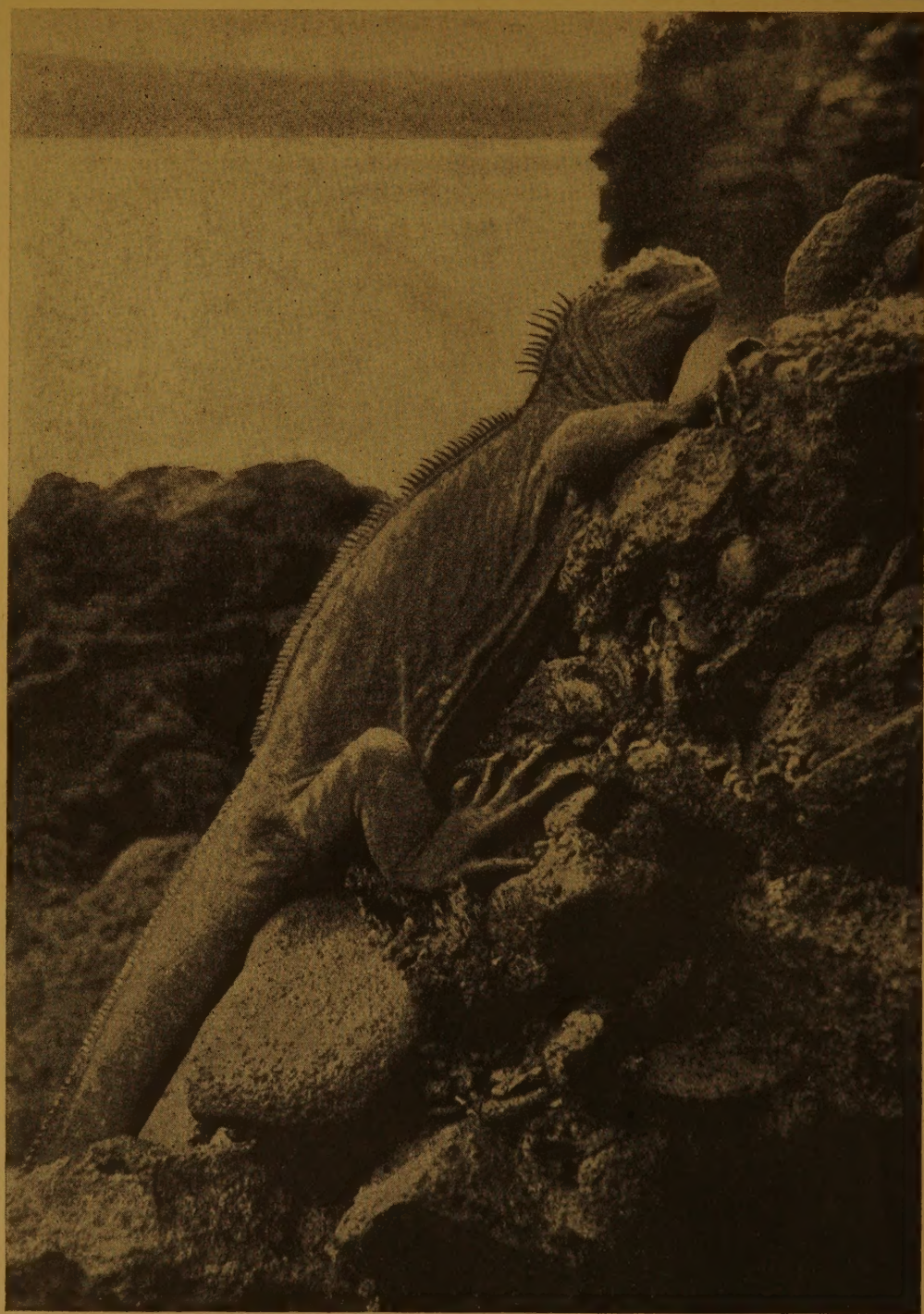
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ADVENTURES IN EXPLORATION AT THE WORLD'S END

BY WILLIAM BEEBE



FOR twenty years William Beebe has followed the trail of strange animals, birds, and insects in the remote parts of the earth—into the jungles of British Guiana and the East Indies, through the waters of a half-dozen seas, across the deserts of Mexico and Mongolia. Tortured by ants and threatened by head-hunting Dyaks, he has lain in the thick grass of Borneo for hours to watch the mating dance of the argus pheasant. Through the tangled vines, orchids, and giant ferns of Brazil he has followed to discovery the rarest of jungle creatures. He has gained an intimate knowledge of the last living links between birds and reptiles.



GALÁPAGOS
IS HIS
HOME ✥
 ✥

The iguana, or sea lizard, extraordinary in size, numbers, and appearance, lives in the waters of the Galápagos Archipelago and in deep burrows on the lava-strewn shore. It is the only lizard anywhere to be found that is marine. The coat is a dull gray when dry, black when wet. Green scales about the eyes and mouth, reddish spots on the back, and a long dorsal crest of spines complete the decorative scheme. Most remarkable of all, the reptile has a placid disposition, which permits human beings to stroke and pet it at will



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A SCIENTIFIC OUTPOST AT THE END OF THE EARTH

William Beebe on the shore of one of the Galápagos Islands, where temporary shelter has been provided against the scorching rays of the equatorial sun



ADVENTURES IN EXPLORATION AT THE WORLD'S END † † †

BY WILLIAM BEEBE

It is possible to enter a jungle and become acutely aware of poison fang and rending claw. But it is infinitely more wonderful and altogether satisfying to slip quietly and receptively into the life of the jungle, to accept all things as worthy and reasonable; to sense the beauty, the joy, the majestic serenity of this age-old fraternity of nature, into whose sanctuary man's entrance is unnoticed, his absence unregretted. The peace of the jungle is beyond all telling.

We who strive for a little insight into evolution and the meaning of things as they are forever long for a glimpse of things as they were. Here at my laboratory I wonder what the land was like before the dense mat of vegetation came to cover every rock and grain of sand, or how the rivers looked when first their waters trickled to the sea. All our stories are of the middle of things, without beginning or end; we scientists are plunged suddenly upon a cosmos in the full uproar of eons of precedent, unable to look ahead, while to look backward we must look down.

NOTE: The Editor of The Mentor acknowledges the coöperation of Messrs. G. P. Putnam's Sons, publishers of Mr. Beebe's book, "Galápagos—World's End." The illustrations are reproduced from photographs made by members of the expedition to Galápagos Islands.



THE STEAM YACHT
NOMA ✚ ✚

In Tagus Cove, bounded by the precipitous coast of Albemarle Island, in the Galápagos group. For two months the *Noma* served as headquarters for Mr. Beebe and the scientists and artists who accompanied him on his nine-thousand-mile voyage

Far out in the Pacific, and yet not in the South Seas, is a cluster of cold volcanoes which, over three hundred and fifty years ago, were known as the Enchanted Isles. The seventh Lord Byron saw them, stumbled over their rugged lava, and was astonished at the tameness of the birds; Robinson Crusoe was brought here by his buccaneer rescuers and must have rejoiced that his luck had not cast him upon these inhospitable shores.

GALÁPAGOS ISLANDS

The Galápagos Islands belong to Ecuador and they are situated directly upon the equator, five small ones being slightly north of the line, and the others on or just south of it. The group is five hundred miles distant from the nearest point in South America, and six hundred and fifty miles from the nearest headland of Costa Rica.

The problems of greatest interest which these islands offer have to do with the origin of their fauna and flora. Three points of view are possible:

I. They were geologically recently uplifted from mid-ocean as separate volcanic peaks, never in connection with one another or with the American continent.

II. The archipelago, while always oceanic, was at one time a single island, separated in comparatively recent times, by submergence, into the present number of isolated peaks.

III. The islands were at one time connected not only with one another but also with the American mainland.

The first theory, especially as to the interrelation of the islands themselves, I am convinced is not supported by the facts either of geology or of

ADVENTURES IN EXPLORATION AT THE WORLD'S END

organic distribution. With such long-continued volcanic activity as the islands indicate there must have been many recurrences of emergence and subsidence. Distinct marine deposits have been found many feet up on the elevations of some of the islands. That the islands were at one time continuous dry land I consider as practically certain.

The third theory of a one-time connection with the American mainland is still a moot question.

When I went to the islands I had no firm convictions or even biases, except that when I read that Charles Darwin held to the oceanic theory I was ready to follow him if any interpretation of observed facts permitted. All that I saw at first and have since read and discussed leads me to a strong belief in the theory of a former land-bridge, one connecting a single large Galápagos island with the mainland of Central America. I can find no facts which irrefutably contradict the possibility of such a belief.

The historical relation of man with these islands has been through thirst, war, tortoise meat, and mystery. The first hint that we have, coming dimly through the earliest years, is that the Inca chief Tupac Yupanqui, grandfather of Atahualpa, sailed out into the Pacific long before the first voyage of Columbus and discovered a mountain of fire which he named "Ninachumbi." But if this, as seems probable, was one of the Galápagos he must have visited other islands as well, for he brought back Negroes and a throne of copper.

The thrill which came to us at dawn on the fourth day out from Panama.



SECLUDED
WATERS ✚

Teeming with strange sea life. Here generations of creatures have come and gone without ever seeing a human being



THE SHIP'S MASCOT

"Benjamin," a young sea lion. A rope attached to a canvas jacket tethered him to the yacht while he took his daily swim

is indescribable in words, yet lies so lightly and abidingly in the memory that it can be recalled by odor, sound, or abstract color. From the bridge of the yacht I perceived a low cloud on the southwest horizon undissolving the other horizontal mists gathered from sea or sky during the night, which at daybreak hesitated between allegiance to the sea as rain or to the sky as clouds.

The upper edge of the strange horizon cloud sloped upward, which is unusual with clouds, and at last the solid mist shredded away from the tenuous peaks, and I saw land, a crater, an island, Galápagos—Indefatigable itself—world's very end. It was so huge, so unlike all de-

scriptions we had read, that for long we were uncertain of its identity, until we had sighted and checked off the Gordon Rocks, Barrington, North and South Seymour, Daphne, Jervis, James, Duncan, and Albemarle.

On to the northwest of Indefatigable we steamed slowly, wishing for a dozen eyes, so filled was the sea with strange living things. For three days we had hardly seen a feather and no aquatic life, and now, from appearances, we might have been near Mount Ararat on the twenty-seventh of a certain second month. Petrels fluttered here and there over the waves like part-colored butterflies, shearwaters with steadier wing-beats recalled martins, and two albatrosses floated over the yacht, an unexpected sight as I had not thought to see them at this time of year. Sharks swam alongside, two fur seals swam near by and looked us over from wireless antennæ to waterline—the only two I saw at the islands. The most spectacular sight was a giant shellfish at least eight feet in length, which leaped three times in succession, bringing down his mighty blade each time in a different direction. Pelicans and frigate birds flew around and around us, and boobies swooped low to quench their curiosity. The rumbling clang of our anchor rang out like a desecration, and we came to rest in Conway Bay, the very harbor where the most famous pirates of all time had anchored. I looked around at the island

ADVENTURES IN EXPLORATION AT THE WORLD'S END

spread out before me, listened in vain for any sound from shore, and let the fact sink deep within me—in my turn I had come to the Galápagos and another dream of my boyhood had become real.

GALÁPAGOS VISITORS

Charles Darwin spent over a month on these islands, and from observations on the varying forms of bird life he derived perhaps the first inspiration for his "Origin of Species." From that day to this the islands had remained almost unchanged. At rare intervals a schooner passed or was wrecked on some outjutting lava reef. But for month after month, and year after year, on most of the islands the reptiles and birds and sea lions knew only each other's forms and alone watched the sun rise and set. Generations of these creatures came and went without ever seeing a human being. On the twenty-eighth of March, 1924, I slipped overboard from a motor lifeboat and waded ashore through crystal-clear water. A little duck flew down, paddled and waddled to our very feet, looked up into our faces, and quacked in curiosity and astonishment. I knew it for the fearlessness of the Garden of Eden, the old tales of Cook and Dampier come true again.

Scientific expeditions had visited this archipelago at various times since Darwin's trip eighty-eight years ago. One remained six, another seventeen, months. Able men had examined, collected, and described thousands of specimens, and had arrived at antithetical theories in regard to the origin



THE PERSONNEL OF THE EXPEDITION

The members of the expedition on the deck of the *Noma*, with the pet sea lion, a monkey, and skeletons of some rare specimens. Mr. Beebe is seated at the extreme right



IN THE SHIP
LABORATORY

Here Mr. Beebe and his assistants compiled information gleaned during days of fascinating research and observation

of the islands. I had the advantage of all this accumulated knowledge, although some of it was singularly barren for our present use. A very thorough list of plants has been published, giving exact distribution, elevation, and relative abundance, but, except for the technical names, no hint as to the growths themselves. If explorers would give just a thought to others who might come after and take the time to write out the simplest kind of a key it would be a kindness beyond gratitude.

GIANT THORNY LOBSTER

One of the most beautiful things in death is the giant thorny lobster of the tropics. Each part of the great carapace and the sheath of the legs, the eyestalks, the huge thorns and cornices of the head are marvels of delicate carving and color, and when death comes to this crustacean, and the fishes and the scavenger mollusks and worms have made away with all his muscles and flesh, then the empty shell, as wonderful in carving as the Taj Mahal, is washed up and pounded to pieces upon the lava, and all the fragments scattered through the sand—a myriad mosaics of the most exquisite sculpture and with pigments faded into unnameably delicate tones and hues. As I casually unearthed some jewel of a leg joint, well worthy of a setting in platinum, a slender rod splashed with mauve and crimson, with a galaxy of blue stars wound in a spiral about it, I realized more than ever what a casual thing is man upon the earth. For untold ages since thorny lobsters first crawled about in the waters of the upper chalk, perhaps sixty million years ago, beautiful detritus such as this has littered the tropical sands. Only by

ADVENTURES IN EXPLORATION AT THE WORLD'S END

the merest accident had I stumbled upon it, and its shape became beautiful in my brain, its pigment color in my eye. Once we were taught that the earth was the center of the universe; then that man was the reason for the existence of all earthly things. Now I was thankful to realize that I was here at all, and that I had the great honor of being one with all about me, and in however small a way to have at least an understanding part. I knew very well that my carnelian and sapphire lobster joint was not made for my special delectation or any man's, but that, in spite of the millions of years that have passed since the crustacean's ancestors and mine were one, our ways had by accident touched again at last, the tropical crustacean to bring beauty of form and color, I a humble appreciation.

NATURAL CONDITIONS

Indefatigable is rounded in contour, about twenty-five miles across, and rises very gradually to a height of twenty-three hundred feet or more at the great central crater. Rumor has it that there is a lake of fresh water in this crater, but no explorer has ever mounted above a thousand feet or approached the center of this island, and, lacking time to arrange relays of food and water, five miles was as far as I succeeded in getting. As I walked inland I was surrounded by piles and hills, slopes and gullies, all fashioned of great sheets and disks of clinker, like thousands of misshapen manhole covers balanced on edge or thrown together as the last upheaval or earthquake left them. Huge cacti raised their oval pads aloft, angular and posed like Javanese dancers,



WORKING ❖ ❖
UNDER DIFFICULTIES

When overtaken by rough weather the director and his staff sat on the floor to type their notes. The day this picture was taken a giant wave overturned chairs and threw the cabin into general disorder



ON THE BEACH OF A DESERT ISLAND

Among the members of the party are Isabel Cooper, scientific artist; Ruth Rose, historian; Professor Wheeler of Harvard, entomologist; Robert McKay, game fish expert; James F. Curtis, a New York lawyer who accompanied the expedition as curator of dredging and diving; Dr. James Mitchell, physician; William Beebe, naturalist

and lower growths found somehow space for roots in jagged crevices, and nourishment from scant volcanic dust and ash. Two qualities stood out in the flora, the predominance of spiny and thorny plants and of those with thick fleshy leaves and stems. All the coast lands were semi-arid, rain falling only during two or three months, and then but sparingly. So it was easy to account for the plants which hoarded water within their tissues not for a rainy but for a rainless day, such as the cactus *Opuntia* and *Cereus*. The aridity of the coast lands had been so emphasized in the various accounts I have read that I was astonished to find all this country surprisingly green and almost every plant in full flower. Yet when I came closer and examined the growths more in detail I saw at once the superficiality of this verdant mask.

No sooner had I passed beyond the open sandy beach than little lizards began to dart along my path. These lizards, from four to eight inches in length, were marked with colors which I was beginning to expect in these islands, gray and black and scarlet-ash, and lava and flame—appropriate for a land where every hill was a volcano, every path a flow of lava, and with the plants growing from tufa beds and ash heaps. The male lizards were gray and brown above, mottled and banded with black, with the throat and underparts a mixture of pink, red, and contrasting black. The females were usually more of a monochrome brown,

LIZARDS

with a brilliant slash of fiery scarlet over face, shoulders, and sides.

They ran and frolicked about, running in and out of the lava crevices, with always a lookout for marauding birds. Of course they were absurdly tame and investigated all our luggage. When pursued they would impudently pause until almost within reach, at the last moment going through a great show of intimidation, nodding the whole head and body violently up and down, and expanding the scarlet and black throat pouch to its fullest. When caught, they accepted confinement philosophically and spent their time catching flies or taking them from our fingers.

I crept up to the first one I saw, anxious to get a photograph, and while looking into my camera almost trod upon it, so tame was it. While waiting for it to turn sideways, a big male crawled between my feet and nodded frantically to a scarlet-throated female sunning herself on a bit of lava. He crept a little nearer, nodded again, whereupon the lady lizard rose as high as possible upon all four legs, making them look like straight little sticks, arched her body, blew herself up with air until she lost all semblance to a lizard, and, turning her head slowly, spat upon her admirer. He turned, nonchalantly caught a fly, and sadly made his way elsewhere. Never have I seen such a sudden transformation, or a more unmistakable indication of disposition.

Here, within a few yards, I had seen a mocking bird and a lizard, yonder were several small black ground finches, and now a hawk soared overhead and a dove whistled past. The only other lizards on the islands were tiny



RUTH ROSE, HISTORIAN AND CURATOR OF LIVE ANIMALS

"In conference" with three friendly natives of Galápagos



IN THE NAME OF SCIENCE

Isabel Cooper sketching a Galápagos snake at close range

geckos and iguanas, which I was soon to encounter.

NATIVE BIRDS The soul-satisfying inclusiveness of desert-island natural history was evident just after my first great blue heron flew. Striking inland again beyond the barrier of the mangroves, I followed a big, meandering pond or lagoon, green with bottom scum. Ducks were seen on another day, but now the waters were barren of life. Suddenly, like a burst of vocal rockets, four Hudsonian curlews and a pair of black-necked stilts shot up and with loud outcries circled around several times. The curlews, with their sickle bills and unforgettable plaintive cries, would soon be off on their brave journey to their summer

home in the heart of Alaska, six thousand miles to the north. The stilts were unchanged from their fellows of the continents, but were residents, and the female of this pair, pretending a broken wing, very likely had a quartet of sand-colored youngsters hidden somewhere near. But the striking thing—the character which instantly set both of these species apart from the more essentially Galápagos birds, was their fear, their timidity. Unworried by their frantic rush of wings and outcries, all the native birds in sight, instead of being warned and alarmed at our presence, came straight to the nearest bushes or actually hovered about our heads in mid-air, striving to make us out.

Three of us started out in the little dinghy puff-boat early in the morning of our second day and landed on Eden Island. So protected was all this inner part of Conway Bay that only a slight ripple ran up and down the bed of rounded lava pebbles. Straight up from the shore high cliffs rose, basaltic columns and angles in strong bas-relief, splitting off at a touch into mighty ax heads with sharpest of edges ready made for any passing cave man. Just above high-tide mark the pebbles gave way to huge lava boulders, some smooth, others fretted with a surface that tore skin or rubber soles at a touch. I knelt down to watch the progress of a great cone-shaped mol-

lusk. The snail flowed slowly along the rock, trailing its twisted shell of pale yellow and purple, now bathed by the clear water, now left dripping in the air.

SEA LIONS Suddenly I heard a snort and a raucous roar sounded in my very ears. I started up and there within six feet was my first southern sea lion. He was unique in character and behaved as none of his kind ever did again. He presumably thought I was another sea lion but crippled and deformed, and he launched attack after attack upon me. The first one or two were so startling that I was really alarmed and made certain of a line of retreat. The lion of the sea would weave back and forth a few yards off shore, splashing and grumbling, arousing himself to the point of attack, then, with a magnificent round-backed dive, he dipped down and toward me, and shot up into the air, eight, five, or four feet away! measured by his exact conviction of safety. I rose from my pinniped posture, stood up and watched the courage of the great beast ooze away and his terrific roar die out in echoes against the cliffs as he sank back into his element. Finally, by subtle retreats, I led him to think that I was on the point of flight and he made a dive which stranded him on the pebbles. The moment he appeared, I charged in my turn and before he could go into reverse I had his hind flippers in my hand. Pebbles flew in all directions, water foamed in masses as he flippered and caterpillared on the loose shingle in abject terror. If he again appeared above the surface it was very far from the beach of Eden. I saw and played with dozens of his fellows and never again was charged or threatened.

Within two days we realized that these islands were still in the age of reptiles, or rather of reptiles and birds; amphibians and indigenous mammals being wholly absent,



A ROUGH TRAIL

The only specimen of the giant turtle seen by the members of the expedition. It was captured in the crater of an extinct volcano, but died a few days later. Land tortoises have been known to climb for miles up a steep mountainside. The largest one ever taken from the islands required twelve men to carry it



A PLAYGROUND FOR SEALS AND IGUANAS

and fishes above the water negligible—although sail fish and mullets leaped high and blennies climbed out and flicked here and there upon tide-soaked rocks.

IGUANAS Giant tortoises and land iguanas dominated the upper parts of the island, while the jolly little *Tropidurus* lizards ran everywhere under foot. But the shores were held by the big black iguanas, who, more than any creature I have ever seen, except the hoactzin, brought the far-distant past vividly into the present.

Iguanas have been recorded as reaching fifty-three inches in length and a weight of twenty pounds. I saw several which I am sure were four feet long, but the two largest captured were thirty-five and forty-one inches respectively, the latter weighing thirteen pounds. Young ones a foot in length weigh only a quarter of a pound.

We found sea lizards in abundance at widely separated localities as at Tagus Cove, Albemarle, and all around Indefatigable. Collectors have recorded them from twenty-one islands, and I can add to the list Eden and Guy Fawkes, northwest of Indefatigable, the fact important only as being the locality of many of my observations. I gave as much time as possible to these remarkable iguanas and found them superlative in the two dominant qualities of the Galápagan fauna—strangeness and tameness.

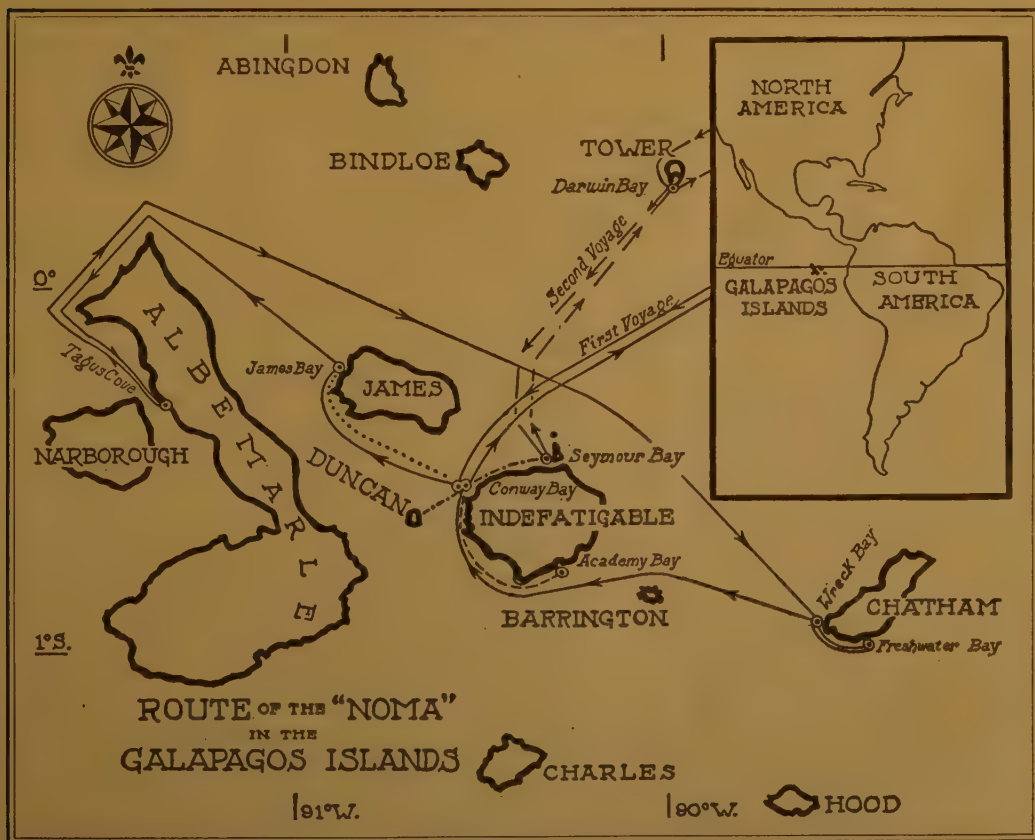
The daily round of the sea iguanas was very simple. They spent their night in their burrows in the earth, or deep down in lava crevices. About

ADVENTURES IN EXPLORATION AT THE WORLD'S END

eight or nine o'clock in the morning, if the sun was shining, they came out and waited for low tide, then, making their way slowly to the edge of the surf, they fed on the short, glutinous algæ. Afterward they sometimes basked all day in the sun on some favorite rock, out of reach of the water, individuals going back day after day to the same spot. I never saw a single animal out at night, not even in full moonlight at low tide. They feed but once a day.

Like most lizards, these iguanas were very sound sleepers and when sprawled in the sun would seldom awaken at the sound of my footsteps. Indeed, I have known them to remain undisturbed at the sound of a gun not far away and I believe their sense of hearing is extremely undeveloped. Sight was their most acute sense and they detected me yards away.

Challenge and courtship were indistinguishable in external manifestation and of a majestic simplicity. The lizard reared high up on his front legs and nodded his head vigorously up and down a few times—that was all. When two large males passed close to one another they stopped, went through this intimidation formula, waited with the statuesque patience which only a lizard can achieve, then, honor satisfied, both passed on. One could imagine a mental battle in which there was no vulgar external advertisement of the victor. A male would approach a female with amorous intent, stopping every few steps to send forth his little steam exhaust, and solemnly to nod.





IN QUEST OF SEA TREASURES
With the *Noma* going full speed

This was all he could do to express the passion within his scaly cuirass, but, judging by the size of the colonies and the abundance of the young, it was satisfactory.

No other living inhabitant of these islands seemed so thoroughly a part of its environment as the iguana. In color, in rough contour, in the scales of its head standing up like vol-

canic cones, in its intimacy with lava and surf, it seemed an organic embodiment of the shores of these desert islands. Its swimming ability has either enabled it from time to time, even in spite of sharks, to pass from island to island to such an extent that there are no well-marked separate insular forms, or perhaps its limited environment has made for absence of variation. It has very remarkable powers of orientation, as I proved on throwing an individual overboard when we were anchored two miles from land. It splashed into the water on the seaward side of the yacht, swam around the stern and started straight for the nearest land off the port bow, although the lava shore could hardly have been visible from the lizard's viewpoint, especially in the dim light of late afternoon. It made five long, deep dives before I could recapture it.

FISHES The first fishes one notices along any tropical shore are the gobies and blennies, principally because they refuse to stay in the water, but go skipping from pool to pool. They are small, rather elongated fish with elaborate fins and a great variety of markings. Some have the pelvic fins united in the middle line to form a leg-like support or sucker. They are capable of most unfishlike activities. I still retain a vivid memory of the mud kippers of Java, flipping about, lying on their sides or backs in the sun, waving their fins to keep away troublesome flies. Here were several species, all draped in cool colors and patterns, bits of green and brown algæ on their sides mingled with light sun glints and dark lava points. They could change their color at will and no two were quite alike. Crabs, hydroids, sea fans, sponges, serpent stars, and weird worms filled every grotto, while mollusks moved about or clung motionless, mimicking everything else in the pool, both animal and vegetable.

ADVENTURES IN EXPLORATION AT THE WORLD'S END

We reached the pools at what we thought was dead low tide and made the most of every moment. We had been working about an hour when I

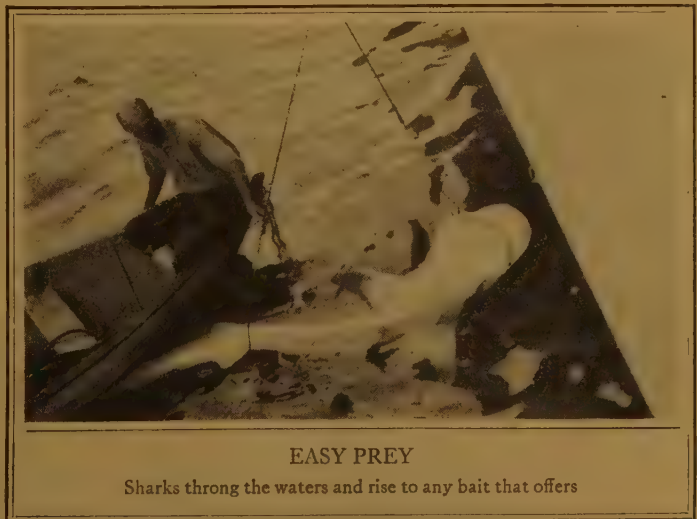
CATCHING AN OCTOPUS

straightened up to ease an aching back. Almost at my side I saw what will be ever to me the most remarkable sight in the animal world. Frightened by our long-continued splashing and tramping, a big octopus had crept quietly out of a crevice just behind me and was making his way as rapidly as possible over the seaweed shelf down to deep water. Nothing animate is comparable to this sight. The bulging mass of the head or body, or both, the round staring eyes, as perfect and expressive as those of a mammal, and the horrible absence of all other bodily parts which such an eyed creature should have—nothing more but eight horrid, cup-covered, snaky tentacles, reaching out in front, splaying sideways and pushing behind, while one or more always waved in the air in the direction of suspected danger, as if in some sort of infernal adieu. This octopus was over two feet across, jet black when I first saw him, but turning to a mottled gray when we engaged in our struggle. When I headed him off he stood on defense and did not retreat. After much feinting and slipping and unpleasant pulling away from the myriad suckers, I got the beast into a snake-bag and tied it firmly.

GIANT TORTOISES

My friend Mr. R. H. Beck has probably had more experience with Galápagos tortoises than all other men together. He writes: "It is only within the last few years that the home of these very large tortoises has been invaded by man, but the rapidity with which they are being killed and the reason for their destruction leaves us but little hope that they will survive any longer than the American bison after the hide hunters began their work of extermination.

"At the time of my visit the majority of the tortoises were in the open glades and sunny parks in the upper edge of the forest. In every such place along the trail and near other trails traversed near the ranch they could be seen feeding, walking about, or quietly sleeping with their heads against the base of some bush or tree, where they had dug a form in which to lie. The form which a tortoise occupies is similar in shape to that of the common hare in California; but, instead of facing



EASY PREY

Sharks throng the waters and rise to any bait that offers



outward as does the hare, the tortoise faces inward.

"The tortoise seemed to have no regular time for feeding, being at all hours of the day eating or walking about. During the middle of the day, if the sun is shining, they keep in the shade of the tree, but if it is cloudy many spend the time wandering back and forth on the trails. We were told by the natives that, in the summer, the tortoises go up to the top of the mountain; and this statement confirmed my observations of similar habits of other species in the archipelago.

"After seeing on this mountain dozens of tortoises of good size, one wonders where the small ones are;

but after spending a few days afoot and seeing the many wild dogs in that region . . . we can only wonder that so many of the large ones remain. From the time that the egg is laid until the tortoise is a foot long, the wild dogs are a constant menace, and it is doubtful if more than one out of ten thousand escape. We certainly saw none and the natives told us that the dogs ate them as fast as they were hatched.

"At the rate of destruction now in progress it will require but a few years to clear this entire mountain of tortoises."

In the New York Zoölogical Park there is at present a Galápagos tortoise which is thirty-eight and a half inches in length and weighs two hundred and sixty-eight pounds. Compared with our specimen this shows an increase of about sixty per cent in length and more than seven hundred per cent in weight.

These tortoises are said to be the oldest living beings in the world, four and five hundred years being claimed for the largest.

We know nothing of the ancestors of these great tortoises. A fact worth recording, however, is that giant tortoises closely resembling these have been found fossil in Cuba.

LARGE LIZARDS

I had walked only a few yards over the Seymour savanna when I realized it was the headquarters for all the *Conolophus* of the island. Every cactus, every small isolated bush of *Cordia* or *Acacia* or *Bursera* sheltered a lizard, and all big ones. Throughout all of our explorations of this colony I saw not a single lizard under twenty-four inches and most were three feet and even more in length. I sat down and counted fourteen, all prehistoric, ancient-looking, all sprawled out in spots

ADVENTURES IN EXPLORATION AT THE WORLD'S END

of greatest shade. The great heads were rugged, with rough, bright golden scales, which became green on the mosaic-like labials, and chrome-yellow on the under side of the chin. The folds of the neck skin were whitish gray, with the hind neck and forelegs yellow. The body and tail were divided into large irregular areas of terra-cotta, black, and yellow, the spines along the back taking to themselves the color of their respective bases. It seemed to be a time of general molt and every lizard was in rags, with thin tissues of scaly skin blowing out from body and legs.

I have eaten many scores of Mexican and South American iguanas and found them delicious, and I can readily believe some of the old voyagers who dwell on the toothsome of *Conolophus*. But every one we collected was too precious to sample. Unlike *Amblyrhynchus*, they accepted captivity in an equable spirit at once. We fed them at first on cactus fruit and then began to draw on our cold-storage cabbage, lettuce, and bananas, and in a very short time every one was eating greedily, taking food from our fingers. At the present date of writing (seven months after capture) only one death—and that due to mechanical injury—has occurred among the eighteen specimens collected and brought back alive to the New York Zoölogical Park.

Of greatest value now would be thorough collections of fish and other marine life and of terrestrial invertebrates, combined with intensive study of the habits and interrelationships of the birds and reptiles, of which latter groups more than enough specimens have already been collected.



FAR FROM HIS ♣
NATIVE HAUNTS

A giant Galápagos turtle is a favorite exhibit at the New York Zoölogical Park. He lives on raw fruits and vegetables, and can eat a hundred bananas a day. He has a genial and uncomplaining nature, and is a patient steed, if awkward and slow



WHAT IS THE SARGASSO SEA?

BY ROY WALDO MINER

CURATOR OF THE DEPARTMENT OF MARINE LIFE
AMERICAN MUSEUM OF NATURAL HISTORY

EDITORIAL NOTE: During the early part of February, 1925, Dr. William Beebe sailed under the auspices of the New York Zoölogical Society to explore the Sargasso Sea. With him on the laboratory ship *Arcturus* were fifteen specialists in various branches of marine science, among them several men and women who took part in the Galápagos expedition. Six hundred forms of ocean life are known to exist in the boggy expanse of sea. Mr. Beebe hopes to capture specimens of the giant squid, of luminescent fish, and of other finny curiosities found only in these waters.



THE SARGASSUM WEED

Gives its name to the sea of mystery

In the center of an encircling stream of the Atlantic Ocean is a relatively quiet oval area, a thousand miles in diameter, situated somewhere between the Bermudas and the Canary Islands. Here vast quantities of floating seaweed assemble, accumulating through growth and renewal from eddying currents as the ages pass by.

This is the Sargasso Sea. The medieval mariner peopled it with strange monsters and related tales of immense octopi that rose out of its uncanny depths to drag down with their huge tentacles unfortunate vessels entangled in the weed.

Columbus was the first to sail through this strange tract. Much to the dismay of his crew, the discoverer's caravels were held there for about two weeks. Sailors' yarns have depicted the vast pool as the final resting place of

derelict vessels supposed to have drifted into its mysterious embrace together with the seaweed.

The name of the sea is derived from the so-called *Sargassum*, or gulfweed, that forms the bulk of its accumulations. Scientists call it *Sargassum bacciferum*, the "berry-bearing *Sargassum*." It is a beautiful alga with brown stem and finely divided branchlets cov-



THE STEAMSHIP *ARCTURUS*

Floating headquarters for the Beebe expedition. It carries dredging machinery and apparatus with strong lenses to search the ocean floor. There are submarine windows in the bottom of the ship. A ledge or gallery extends around the hull a few feet above the water line, from which observations can be made. The ship is fitted with tanks for transporting specimens. The vessel is 280 feet long and has a gross tonnage of 2,475 tons



ered with slender pointed leaves varying from olive-yellow to a delicate green, and adorned with quantities of small, round, hollow berries about the size of peas. These are filled with air and act as floats, enabling the weed to drift on the ocean surface, where in the presence of sunlight it may feed, grow, and propagate as do other plants. In its native haunts along the shores of the Gulf of Mexico and the Caribbean Sea it is anchored by "holdfasts," but when torn loose by the waves its hollow floats keep it at the surface and it continues to grow luxuriantly. In the Sargasso Sea it spreads out in such masses that it impedes the progress of sailing vessels which are so unfortunate as to become entangled there. Though some of the legends have been refuted by scientific investigators, the facts about this extraordinary region are more wonderful than the fiction.

Several million years ago, when North and South America were not yet connected, a great oceanic current swept around the world in the neighborhood of the equator. This girdle-like stream was due to the westerly blowing trade winds caused by the rotation of the earth. In the course of time the Isthmus of Panama rose from the sea bottom, uniting the two Americas, while the various parts of the Old World joined to form the Eastern continent

WHAT IS THE SARGASSO SEA?

as we see it to-day. The equatorial current, blocked in its western sweep through the Atlantic, split on the coast of South America into two streams, one moving south and the other north. The north current, swept toward the coast of Africa, formed a loop which completed the circle by again joining the westerly current.

The branchlets of the graceful sargassum weed shelter hosts of swimming, floating, clinging creatures of strange shape and habits. Shrimp, crabs, mollusks, sea spiders with spiny outgrowths and colored to imitate the weed, hide among its leaflets. If a branch of the weed is shaken, in the words of Agassiz "hundreds of many-colored denizens are seen rushing about in all directions, eager to return to the particular spot best adapted to conceal them; and in a few minutes only the practiced eye of the naturalist can detect their presence."

There is a remarkable nest-building fish, the "marbled angler" of brown and yellow coloration, that blends exactly with the gulfweed, and weaves gelatinous strings of egg clusters into the plant growth with its spiny hand-like fins. Its nest contains thousands of eggs.

The weed is so full of animal life of all sorts that it is visited by larger fish swimming up from below to feast upon its abundance. The inhabitants of the Sargassum not thus devoured eventually die, and their bodies continually rain down into the deep waters below, where the strangest creatures of all dwell in eternal darkness, thousands of fathoms below the surface. Here fish with enormous heads and absurdly short bodies open wide mouths armed with needle-like teeth and engulf all that come within reach. Others are long and eel-shaped with varicolored phosphorescent lights upon the sides of their bodies that illuminate the Stygian darkness in which they live. These creatures also prey upon each other. Some have a jointed rod projecting over the head like a fishing pole, with a phosphorescent torch at the end.

Far from being the region of dread pictured by medieval mariners, the Sargasso Sea is, for the naturalist, a paradise of strange and fascinating rewards.



Copyright by William A. Mackay

THE LEGEND OF THE SARGASSO SEA

From a mural painting by William A. Mackay in the home of Mr. Howard Gould, Port Washington, Long Island, representing the mythical scene showing vessels of all ages caught in the entangled weed of the Sargasso Sea

THE ITALIAN LAKES

A VISIT TO LAKES COMO, LUGANO, MAGGIORE, AND GARDA

BY WILLIAM STARKWEATHER



PALLANZA, ON LAKE MAGGIORE, SEEN FROM ISOLA MADRE

Isola Madre, one of the beautiful Borromean islets, although less famous than Isola Bella, is notable for its exquisite garden, which, laid out in the English style, is more luxuriant and much less formal than the garden of Isola Bella. Pallanza, of which one here obtains an excellent general view, is a famous winter resort



LOCARNO, LAKE MAGGIORE

This enchanting view is taken from the loggia of the pilgrimage church of the Madonna del Sasso, eleven hundred feet above the lake. The church, founded in 1569, contains a notable "Flight Into Egypt," by Bramantino. Note the feathery top of the beautiful olive tree on the right. Locarno, at the very head of Lake Maggiore, is in Switzerland

AN EXCELLENT train leaves Milan for Como every afternoon at two-thirty.

Board it with me and join in a journey through the Italian lakes. We will visit Lakes Como, Lugano, Maggiore, and Garda. Nearly surrounded by Alpine spurs, they lie at the very north of Italy; Lugano and Maggiore are indeed both partly Swiss, and until the war the northern tip of Garda was Austrian.

For an hour our train crosses the flat, lush Lombardy plain. They have been putting Paris green on the grapevines—the silvery color of the vineyards contrasts with the warm greens of the rest of the landscape. As the train descends to Como station we catch a first ravishing glimpse of the electric blue of the most celebrated lake in the world; beside it, the gleaming cream walls of the town of Como; behind both, the towering heights of the encircling mountains. At the station are the usual hotel omnibuses and attendants, but as we go up the lake this afternoon we take a carriage to the town center. Our carriage, with basketwork body and a champagne-colored canopy with bobbing fringe, is certainly Victorian—the horse must be early Victorian. Como proves to be a large place: the learned Mr. Baedeker states that it is the see of a bishop, has

38,000 inhabitants, and is devoted to the silk industry. As we reach the promenade that encircles the bay the lake is in front of us, gleaming, satiny, a shimmer of blue; beyond it the cloud-capped mountains; behind us are the trimmed green trees of the promenade and Como, all white and cream walls with orange-red roofs. Sumptuous villas half buried in flowers and semitropical plants adorn the mountain slopes at the side. Over all hangs that peculiar atmosphere of dreamy, voluptuous charm which is the greatest characteristic of the Italian lakes. Boatmen entreat us to be rowed about; for a few cents one can be photographed feeding pigeons; on the lake some athletic young Italians are spurting over the silken water in a racing shell—the new Italy is mad about speed. Beyond are many bathers. A walk through the town brings us to the cathedral, one of the finest in Italy, cited as an excellent example of the fusing of Gothic and Renaissance styles, both of which are, in this building, of admirable type. Serious architectural study of the edifice over, we may sit at the café across the square and enjoy the creams and tawny yellows of its splendid facade in late afternoon sun, watch the creeping violet shadow of the houses opposite slowly mount its walls.

The little white iron steamer that carries us up the lake is called the *Plinio*. Como is an ancient place. When the Roman author Pliny the Younger, born in 61 or 62, had a villa near here the town had been long established and the whole lake was a favorite resort of cultured Romans, who found refuge in exquisite villas from the violence of Rome. Lake steamers to-day carry two classes of passengers. Tourists may go comfortably second class on trains, but should go first class on lake boats, thus gaining access to the upper deck. As the vessel slips down the bay the young Italians in their racing shell try their muscle against our steam. The wash of the steamer breaks in a great wave along the shore; bathers seize the moment to plunge in and enjoy something of the tumult of surf bathing. Around the Punta di Geno, and the superb panorama of the lake opens before us.

The lake of Como is really like a great fiord set amid mountains over 7,000 feet high. It is some thirty miles long, about two miles wide, and very deep—over 1,300 feet in some parts. The water is of a remarkable and lovely blue, a slightly greenish, electric blue. From the water's edge the mountains tower up like great walls of brocaded green velvet. They are covered with chestnut, olive, lemon, and orange trees, with palms and oleanders, the whole accented occasionally by the sharp black of the melancholy cypress. It is evident at once that this is an

ancient and long-civilized country, for, from lakeside nearly to mountain top, these elevations are spotted with farms and villas, palaces and castles. Churches are placed on impossible crags where one feels only a scenic artist would have perched them. The hill-sides are terraced everywhere; the whole country has been worked over for centuries; on every hand are legacies of the dead. The villas slip by in endless procession as our boat moves through a dream-like silence. Here are pink terraces, yellow stairs, urns, statues, palms, white oleanders in full bloom. One can see people on the balconies, automobiles speeding on the fine roads. Of course it is all nature highly arranged, adorned to the last degree by man; only the great height of its cloud-capped mountains saves Como from being sweet. Theatrical it is, for one realizes with a start that it is Como landscape that scene painters have been imitating for two hundred years.

The lake runs north and south and is at its best in late afternoon. Then the east side is one gleaming mass of green gold in the evening sunshine. The west side is in rich purple shadow. The great shadow from the western mountain creeps over the lake hours before nightfall, then, moving slowly upward, it gradually blots out the rich color on the eastern wall. The busy little steamer stops briefly at one town after another. There is much bustling of passengers and movement



THE WORLD-FAMOUS ISOLA BELLA, LAKE MAGGIORE

At the left of the island is the enormous unfinished chateau built in 1690 by the Borromean family, to whom the island still belongs. Back of the shallow town, consisting largely of restaurants and fishermen's dwellings, extends a remarkable formal garden rich in many varieties of semitropical flowers and plants



LAKE MAGGIORE, WITH THE BORROMEAN ISLANDS

The largest island in the center is Isola Bella; behind it is Isola Madre. At the left is the Isola dei Pescatori, or Fishermen Island. The tiny islet between Pescatori and Isola Bella is a favorite bathing place for tourists; who go out in rowboats for a daily dip



ISOLA DEI PESCATORI, LAGO MAGGIORE

The Isola dei Pescatori is, as the name indicates, inhabited almost entirely by fishermen. It is an amazingly picturesque place, looking for all the world like a "property" town built for a moving-picture production. Edible fish of great variety abound in all the Italian lakes

of baggage. Mail is thrown out and taken aboard. Summer visitors stare at our arrival and departure. Fruit and vegetables are loaded and unloaded; there is a tremendous commerce in wine. A country woman at one station is enraptured to receive a stuffed eagle just from the taxidermist at Milan. Tables for dinner are set on the deck. At the next table two college boys from the Middle West have been placed with a jolly Argentine and a rather ironic Frenchman. The boys essay their college French and Spanish and make very heavy weather of it.

It is night when the steamer reaches Bellagio, a handsome place halfway up the lake. An excellent bedroom with hot and cold running water in a good average hotel costs seventeen lira, or about seventy cents, for the night, and in a few moments one is dining outdoors on the terrace, dinner eighty cents without wine. The pink-shaded candles stand out softly against the violet Italian night. Everything is astonishingly like a setting for musical comedy. Bellagio, although one of the larger places on Como, is typical of the many picturesque towns that dot the shores of all the Italian lakes. Back of a handsome water-front boulevard lie a row of shops and hotels. Bellagio shops deal in jewelry, antiques, gowns, Venetian glass. Beyond the hotels the town proper straggles

up the lower mountain slopes in a maze of narrow streets. Here live shopkeepers, hotel employees, workers in the silk industry, small farmers, and fishermen—for the fishing in all the lakes is excellent. A tour of the chain of towns around the lake is best made by automobile. At Menaggio, on the west side of Como, we are to take a light railway eight miles southwest through the mountains to Lake Lugano. But, before leaving, one should stop at the Villa Carlotta near by and see the collection of statuary by two pseudo-classical sculptors who were adored by our grandparents, Canova and Thorwaldsen. Thorwaldsen's great reputation appears to be declining, but Canova is holding well, although he is no longer considered to rival the Greeks, whose sweep, breadth, and power he misses. Here is an old friend, the Cupid and Psyche of Canova, a slightly differing example of which exists in the Louvre; the plaster model for the statue is one of the unique treasures of the Metropolitan Museum, New York.

The tiny train to Porlezza on Lake Lugano climbs zigzag through the terraced olive orchards until Como lies a blue map below. The next carriage is full of young German tourists roughing it. One sees them by thousands in northern Italy. Both men and girls are hatless. The men, coatless, wear



ISOLA BELLA FROM STRESA

Note the elaborate terraces of the world-famous garden at Isola Bella. The parapet, the carefully clipped hedge, the gravelled walk, the potted plants and palms in urns shown in the picture are entirely typical of thousands of villa gardens about the lakes



LAVENO, LAKE MAGGIORE

Entirely typical of a lake town is this neatly kept lakeside boulevard with its formally trimmed trees. The dark points of the cypresses that appear in the foreground of the picture to the right are also characteristic of the landscape in this region

only khaki shirts open at the throat à la Goethe and short trousers. Arms and legs are bare. Mountaineer's socks and shoes complete the outfit. Many carry alpenstocks, a few have guitars slung along their backs. The girls wear one-piece frocks with cubistic embroideries. They are stockingless and wear sandals. All of the party carry their baggage in tiny knapsacks or else carry no baggage at all. Dressed in exactly this manner countless young Germans range not only over the countryside but through all the great cities of northern Italy as well, a perpetual astonishment to the Italians. After all, it is youthful, jolly, and healthy even though flagrantly and deliberately picturesque. The men's hobnail shoes certainly work havoc on the waxed museum floors, and after contemplating these bare-headed, bare-armed, and bare-legged young damsels one can understand the notices posted everywhere on Milan church doors to the effect that visitors should be decorously dressed and adding that those who are not "must be invited to leave, and, if necessary, will be escorted to the door."

At Porlezza, the northern tip of Lugano, we board another steamer and proceed southward. The irregularly shaped lake lies

mostly in Swiss territory. Beautiful of course, it is nevertheless the least rewarding of the four lakes. Only in its central portion does it rival its celebrated neighbors. There we have the great white Swiss hotel town of Lugano and, opposite, Monte San Salvatore, a round-topped mountain with a cable railway to the summit and a superb view. The ascent of Monte Generoso near by is more difficult and even more interesting. At Ponte Tresa at the southern extremity of the lake we are again in Italy. Passports are examined of course and on the boat there has been a superficial customs examination by the Alpini, a division of the Italian army assigned duty on the northern frontier, in their cock-robin hats and sage-green uniforms. One considers sadly how young all the customs examiners everywhere seem since the war. Eight more miles on a light railway, this time somewhat more like a trolley than a train, and we are at Luino, a tiny place on Lake Maggiore.

Lake Maggiore is larger, more grandiose, less artificial than Como. Forty miles long and from two to three miles wide, it is hemmed in at its northern, or Swiss, end by towering mountains which slope gradually toward the south into the rich plain of



PASSENGER STEAMER, LAKE COMO

Many of the busy little iron steamers that ply from town to town in the Italian lakes are quite old. Second-class passengers are restricted to the forward lower deck. First-class passengers may enjoy the upper deck with its canopy and the saloon beneath

Lombardy. The lake is encircled with interesting towns, but its most celebrated feature is the celebrated Borromean Islands, including the world-famous Isola Bella lying near the lake's center. These lovely islets belong to a noble Italian family, one of whom in 1690 constructed a great palace and garden on Isola Bella. It is reached from Luino by steamer in three hours. As we approach the island it is an enchanting vision, doubled by its reflection in blue satin water. Richard Bagot, in his interesting but somewhat acrid and bad-tempered book on the Italian lakes, refers to Isola Bella as "a tourist trap," mentions the island's "monstrous artificialities," stating that its gardens are "a triumph of bad taste." It is true that, upon landing, an unfortunate impression is made by a series of booths built along the water front from which highly commercial and determined venders offer souvenir trash. Back of these booths are rows of picturesque restaurants and a tiny town. More than half the island is given over to the ornate chateau, which should be visited, although its pictures are mediocre, and to an elaborate terraced garden. The gorgeous rooms of the chateau are of course *baroque*—warm, romantic, exuberant, overdecorated, and un-

restrained. So too is the garden, full of statues, of staircases, of shell grottoes. Both garden and chateau are remarkably interesting expressions of the sensuous and artificial age that produced them. Wandering across these great rooms and terraces one thinks that all this is an art of the past; it is with something of a shock that one recalls that it is exactly this kind of house and garden that some American millionaires are building beside the blue waters of Miami.

The restaurants at Isola Bella are expensive for what you get. In one of them on a certain day last summer guests had an amusing struggle to get anything to eat. The proprietor just before serving luncheon discovered in a venerable Italian visitor the "boss" for whom he served as waiter in a Hudson Street restaurant in New York City forty years before. Whereupon in high agitation he let all his other visitors go hungry while he concocted savory and unending courses for his old employer! Stresa on the mainland near by is a favorite resort for Americans.

Many tourists coming from the north start their lake journey at this point and proceed in the opposite direction to that we have taken. Not far away is Baveno, where Queen



LAKE COMO AND ISOLA COMACINA

Near the point of Comacina is the town of Sala, beyond the headland the bay of Tremezzo, and on the far-distant point in the center of the picture Bellagio, mentioned in the article. The grace of the olive tree lends itself well to photography and indeed to every form of art

Victoria lived for a time in the ugly Villa Clara.

Too many tourists having done Como, Lugano, and Maggiore, which are in a group, leave Lake Garda, which lies some seventy miles to the eastward, unvisited. It is a mistake. Garda is the largest and by far the most beautiful of the Italian lakes. It is approached through Desenzano on the railway from Milan to Venice. Desenzano offers nothing of interest, and the head waitress who served coffee in the Italian hotel there is also decidedly of this opinion. She was born in Pittsburgh, Pennsylvania, to which she yearns to return. The southern part of the lake, broad, shallow, surrounded by low hills, is not extraordinary. Only Sirmione, beloved by the poets, with its medieval castle and olive-crowned slopes, need detain the visitor before proceeding up the lake into the boldest and most superb mountain scenery. Garda is less artificial than Como, more moving and dramatic than Maggiore. The towering mountains that break in precipices to the water's edge are cleft by great cascades, the water leaping hundreds of feet to the depths below. On the slopes of the lower hills one notices vast numbers of lemon shelters with their white brick pillars, lemon growing being a thriving industry. Among

the innumerable interesting points of this terrestrial paradise must be mentioned Gardone. In the upper village, on the slopes of the mountain, Gabriele d'Annunzio has retired from the world into a flower-embowered château. On the steamer there is much pointing of sticks and much staring at the half-hidden and far-distant roof that shelters the poet.

Amid the grandiose upper stretches of the lake, one of the loveliest regions of the world, lies Malcesine, a tiny town which Goethe visited and mentioned. It contains a thirteenth-century castle used during the late war as a barracks. The whitewashed walls of these bare rooms are covered with scribbled names of brave fellows who were soon to join in fierce fighting about Riva at the head of the lake, formerly an Austrian possession. Riva, an enchanting town, still bears the scars of war. Either Malcesine or Riva are excellent places for a long stay. Good board and lodging can be had for fifteen dollars a week or even somewhat less. Innumerable excursions on the lake, to quaint neighboring hamlets or mountain heights, invite the traveler and make forever refreshing the memory of golden days spent in the dream-like loveliness of this earthly paradise.



SAN GIOVANNI, NEAR BELLAGIO

From this natural grotto we look across the water of the lake to the bay of Tremezzina on the west shore of Lake Como, one of the most beautiful sections of the country, frequently referred to as the Garden of Lombardy



VILLA TROTTI AND THE CHURCH OF SAN GIOVANNI DI BELLAGIO

The grounds of the Villa Trotti on the east shore of Lake Como are famous. Note the Venetian gondola near the steps to the house and the striped Venetian mooring posts at the right



TORNO, EASTERN SHORE OF LAKE COMO

The innumerable little parish churches that lie along the water front or dot the mountain sides of the Italian lakes are often extremely picturesque. Generally in stucco with walls painted in light warm colors: pink, yellow, cream. The whole is frequently offset by the deep rich green of surrounding cypresses



THE CITY OF COMO FROM THE HEIGHTS ABOVE

Como, an ancient town, the Comum of the Romans, is in a lovely site on the southern end of Lake Como. Here the elder and the younger Pliny, the Roman authors, were born. The younger Pliny, who died in 113, left the town money for a library, thus having a considerable start on Andrew Carnegie



MOLTRASIO, LAKE COMO

Moltrasio, on the west shore of Como near its southern end, is not particularly famous, but is extremely typical of any one of a hundred towns that line the shores of the Italian lakes. In the foreground is a lake passenger boat with its oarsman, probably a good-hearted enough rascal, who smiles amicably at you and forgives you if he finds he cannot cheat you



GENERAL VIEW OF COMO

Como is a clean and delightful place of residence. Many Italians and not a few foreigners dream of retiring to Como when able to give up active business. On the mountain in the background may be seen a cable railway running up over two thousand feet to Brunate, which commands a marvelous view of the plains of Lombardy as far as Milan



CHURCH NEAR TONOLANO, LAKE GARDA

High above Lake Garda on the terraces and crags are perched some of the most picturesque churches in the world. Their white walls gleam with particular emphasis in contrast to the black mass of the century-old cypresses which are apt to be planted near them. By moonlight especially these churches with their melancholy trees make an ever-memorable impression



THE SHRINE AND THE CYPRESSES

How many paintings that we have seen are recalled by this view near Sirmione of a little chapel with its cypress grove! It notably suggests Arnold Böcklin's famous "Isle of Death." Böcklin, a Swiss, loved Italy and its decorative landscape, which he frequently painted. He died near Florence



LAKE GARDA FROM THE PONALE ROAD

The Ponale Road, a remarkable feat of engineering, runs southward along the west side of Lake Garda from Riva, its most northern point. The road is cut for the most part in the face of the precipitous cliff and runs through a succession of tunnels. Lying high above the lake, it commands a marvelous view



LIMONE, LAKE GARDA

Limone, on Lake Garda, is in a famous center of the lemon and olive growing industry. Lemon growing is a great source of profit to this region. The plants are sensitive and have to be protected in winter by wooden shelters. Note in the center of this picture the numerous brick pillars of these lemon shelters, whitewashed and gleaming sharply amid the rich green of the trees



ENCHANTING MALCESINE

Malcesine, with Riva near by, both on the upper portion of Lake Garda, are considered by many people to be the fairest scenes on the Italian lakes. Through the hillside olive orchard we gain a glimpse of a thirteenth-century castle of the Scaligers, the warlike princes of Verona. The castle is in fair preservation. It is interesting, although evidently always more of a fortress than a residence



TORBOLE, LAKE GARDA

Torbole is an attractive town near the northern end of Garda. Here Italian lake scenery is of the most grandiose description. Note in the face of the mountain across the lake the Ponale Road, hewn for the most part from the solid rock of the enormous cliffs



FROM A LAKE GARDA TERRACE

The Italian lakes offer the peculiar contrast of lofty and majestic mountains set as a background to highly cultivated formal gardens full of terraces, of staircases and balustrades, of rich semitropical plants and trees. This effective contrast, with the strong and beautiful color of the region, has made it the model for much of the scenery used upon the stage to-day



THE FALL OF THE PONALE

This beautiful cascade is in the northern portion of Lake Garda. The high precipices about the lake are broken by many great clefts, through which lace-like cascades leap hundreds of feet into the azure waters of the lake beneath



VIEW FROM MONTE SAN SALVATORE, LAKE LUGANO

Monte San Salvatore lies about midway of Lake Lugano. Three thousand feet high, it is ascended by a cable railway, thus offering a delightful bit of mountain climbing to lazy folk, the engine doing all the work. On the top there is a restaurant, from which there is a marvelous view. A pilgrimage chapel is near by



PONTE TRESA, LAKE LUGANO

Lake Lugano is partly in Italy and partly in Swiss territory. This town, Ponte Tresa, lies just at the frontier. It really consists of two villages, one Italian and one Swiss, separated by the Tresa River, which here issues from the lake waters



LUGANO AND MONTE SAN SALVATORE

Lugano is a Swiss town full of huge white hotels. It commands the best view on Lake Lugano, of which the round-domed Monte San Salvatore is the most remarkable feature



THE ALPS FROM MONTE SALVATORE, LAKE LUGANO

The exhausted tourist, having climbed to this point, 2,895 feet high, by means of a highly efficient cable railway and being properly braced after such an exertion by various refreshments, may turn his attention to this superb view of the higher Alps glistening and opalescent under their mantle of snow

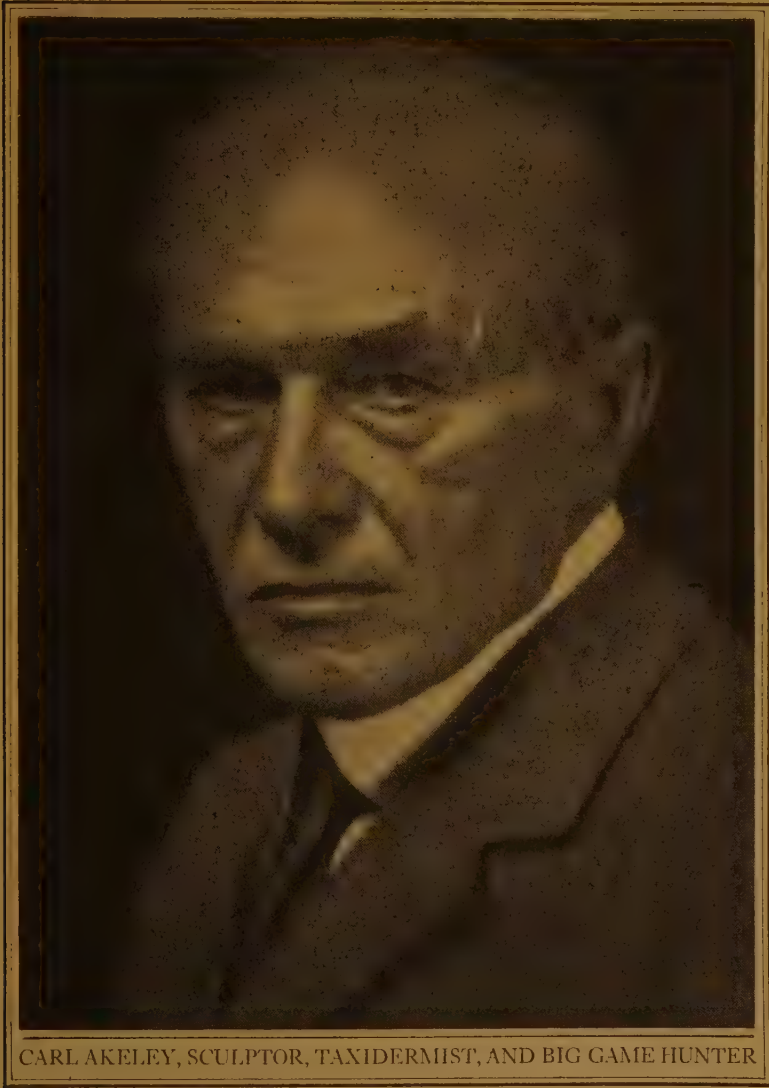


WHERE GABRIELE D'ANNUNZIO LIVES AT LAKE GARDA

This photograph is particularly interesting as it shows the heights above the town of Gardone on the western border of Lake Garda, where the celebrated Italian poet has retired from the world in a flower-embowered villa

THE AFRICAN HALL

PROJECTED BY THE TRUSTEES OF THE
AMERICAN MUSEUM OF NATURAL HISTORY—
TO BE DESCRIBED IN FULL IN THE MENTOR



STATEMENT FROM MR. AKELEY

AT THE American Museum of Natural History in the city of New York there is to be erected by the state of New York an imposing memorial to Theodore Roosevelt. It will form the central section of the eastern façade of the museum. The Roosevelt Memorial Hall will be the main entrance to the museum, and, on the west, will lead into the African Hall. Two of the lion spearing groups are designed to flank the entrance to the African Hall, the third group to stand within and in front of the great group of African elephants that will occupy the center of the hall.

In a later issue of *The Mentor* there will appear a full and detailed account of the plan and scope of the undertaking, in which science, utilizing the tools and technic of many arts and crafts, will tell a comprehensive story of the wild animals, the people, and the varied scenic beauties of Africa.



Photographed from original plaster cast in Mr. Akeley's studio

LION SPEARING GROUP I

The man in front has thrown his spear and missed. Partially kneeling, he is ready to protect his body to the utmost as he draws his knife. The man at the rear is about to launch his spear at the lioness. The third man, who wears a headdress made from the mane of a lion, the wearing of which is a privilege accorded only to one who has killed a lion with his spear, stands tense, ready to act quickly when the second man has thrown his weapon



LION SPEARING

BY CARL AKELEY

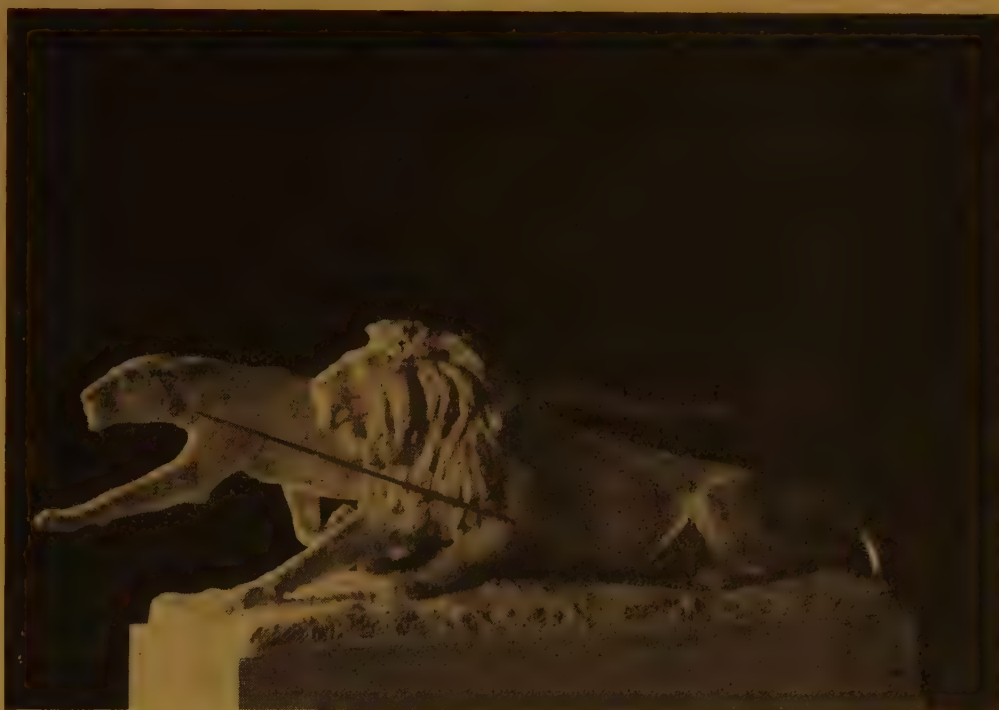
Illustrated with photographs of groups modeled by Mr. Akeley for the African Hall

After my elephant hunt with Theodore Roosevelt on the Uashin Gishu Plateau in 1909, when he shot the cow and Kermit shot the calf that are mounted in the group of African elephants in the American Museum, the Roosevelt party moved back to Sergo where a lion spearing hunt had been arranged for Colonel Roosevelt's benefit. A few days later, when I heard that the lion hunt had been entirely successful, the band of Nandi having speared a fine lion in the open, I realized that a real opportunity had been lost—an opportunity to make a motion picture record of one of the most dramatic and thrilling episodes that Africa had to offer.

In the spring of 1910, after several strenuous months on elephant trails in Uganda, I went back to the Uashin Gishu Plateau for

a lion hunt with Nandi spearmen. I had no difficulty in securing one hundred men, for they were to be paid and fed for playing the game they loved. In the twenty days devoted to the work there were many tense and thrilling moments. My band of sportsmen killed ten lions and five leopards. Only two men were injured. The first day out a leopard was surrounded in a patch of bush, and while I waited in the open for what was supposed to be a lion—as it should be driven out in front of the camera before being speared—there was a great commotion. A few minutes later the beaters brought out a leopard with sixty spear holes in his skin and one of the Nandi with his scalp hanging over his eyes. The leopard had refused to be driven and had given a good account of himself. Prompt surgical attention to the wounded Nandi resulted in a speedy recovery.

Two days later a single lion was brought to bay in a strip of forest and speared before the camera could be brought up within view of the direction he unexpectedly took. Then



Photographed from original plaster cast in Mr. Akeley's studio

LION SPEARING GROUP II

The lioness, as is the rule, is first to charge, the lion ready to spring. When a spear strikes a lion it is pretty sure to stop the charge, temporarily at least, as the spear is a tangible thing of which he will try to rid himself, and usually the lion does not go far after the first hit. When struck with a bullet from a rifle the lion will frequently turn to the wound, but finding nothing tangible may devote all his attention to the man. The lion struck with a spear is much less dangerous than one struck with a bullet

for several days we hunted for lions without success until one morning as the white members of the party were riding along in front, and were just entering the bush that fringed a donga, we met face to face a band of lions that promptly took to cover as the alarm was given. In whatever direction a lion tried to escape a spearman bobbed up in the grass in front of him. The lions were forced to fight it out. Pandemonium reigned as the Nandi, shouting, and lions, grunting and growling, ran helter-skelter among the trees and high grass while I tried desperately to find a point of vantage for the motion picture camera. When it was all over, and we took stock, we found that we had the memory of a few glimpses of tawny skins but no pictures. There were, however, three lions to be skinned, and we had reason to believe that two had escaped.

Again as we rode beside a wooded donga a boy in front of me held up his hand in warning. As I swung off my horse a lion grunted close by, and as I was adjusting the camera a lioness came straight toward me, within ten

feet, swerved and passed, then turned and plunged into the donga—all before the camera could be adjusted. Then I responded to a call from the left flank and hurried the camera to a point overlooking the part of the donga where a lion had taken cover in the high grass at the bottom. I had begun cranking the camera when the first spear was thrown. The spear hit the target, other spears followed quickly, and the lion never left his tracks. It was all over in less time than it takes to tell it. The film shows not only the falling spears but also the movements of the lion in the grass. Immediately I was summoned to another group of spearmen who were holding another lion at bay until I could have my camera brought into position. Again a film record was made.

As we were making camp near by and the two kills were being brought in to be skinned, the Nandi brought in the third lion from down the donga. We learned that one of the spearmen, a youth who had been loitering behind when the lions were located, had been charged by a lioness as he was

running past her. He had killed her, but she had bitten his leg before she died. The boy's wounds were not serious and he was hunting with the rest a few days later. He was now entitled to wear a lion's skin head-dress since he had killed a lioness alone.

It was perhaps a week later that we were riding along the slope of a hill overlooking a valley when I detected a moving object in the grass at the bottom of the valley. We soon found that five lions were leisurely making their way up the opposite hill. Four of them succeeded in reaching the bush along the banks of a small stream on the other side of the hill before being brought to bay by the Nandi. One had turned back and was rounded up in a small patch of high grass near the crest of the hill. This was a splendid chance for a picture, for the men could have held him there almost indefinitely as they awaited the camera.

As I was breathlessly adjusting the awkward thing one spearman, more excitable than the others, threw his spear. Of course, the rest followed and the job was finished before the camera was ready. Again three of the five lions had been taken, but no film.

This was our last encounter. I was not pleased with the results, as the film made seemed an inadequate record. Had I, however, at that time, planned to make a *sculptural* record of lion spearing, I should not have regarded the film as unworthy, for the pictures and other data secured were highly valuable for that purpose.

The story of lion spearing is the sort of thing that is worthy of being recorded in bronze. It is a story of red blood and courage, of the efficiency of primitive men using primitive weapons, weapons made by themselves as they have been made from time immemorial. The story in brief is this: a naked man, by twirling a stick between the palms of his hands, with the end of the stick pressed against another of softer wood, produces fire through friction. Charcoal is then made, and in a crude retort of clay he smelts the iron ore. On a block of granite serving as an anvil, with a smaller stone as a hammer, he fashions crude hammers from the iron. With these as his only tools he shapes a spear which is to be sharpened finally on native stones. Thus he makes a beautifully balanced weapon, with which he goes forth to kill the

lion that has raided his flocks and herds. He takes a great pride in the achievement, for he will make a headdress from the mane which his exploit entitles him to wear. This badge of distinction will forever command the respect of his fellows.

When lions are to be killed, as they must if civilization is to replace primitive life, the most humane method yet devised, as well as the most sporting, is that of spearing. The time elapsing between the first spear thrust and the end may be counted in seconds. There is small chance of the lion escaping to die a lingering death from his wound, as so often happens when he is hunted with guns. If there are two or three natives together it is reasonably certain that they will come out of it without a scratch. Shooting is not nearly as safe for the hunter. Moreover, spearing involves a fair combat between man and beast.



Photographed from original plaster cast in Mr. Akeley's studio

"THE REQUIEM"

Under a canopy of shields the three Nandi chant a sort of requiem over the body of the lion, doing him honor as a gallant antagonist and worthy brother. In this group the lioness does not appear. It is to be assumed that the second man accounted for her. The third holds the broken shaft of his spear, the blade of which entered the chest of the lion, piercing his heart.

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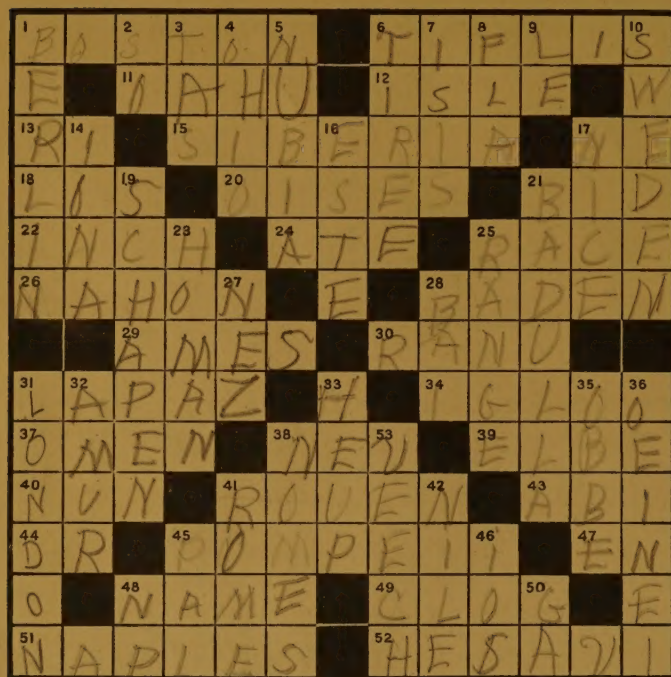
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HORIZONTAL

1. A city called "The Athens of America."
6. City midway between the Black and Caspian Seas.
11. The island on which Honolulu is situated.
12. A body of land entirely surrounded by water.
13. Smallest state in the Union.
15. Place where Russian political prisoners were formerly sent to work in the salt mines.
17. Point of the compass. (Abbr.)
18. A Spanish article, first part of name of an important Pacific coast city.
20. River in north France emptying into Seine. (Poss.)
21. To command one to prepare for a journey.
22. Village in southwestern Scotland, near Loch Ryan.
24. What tourists did on arriving at an inn hungry.
25. Cape on the southern extremity of Newfoundland.
26. Small river in central France that joins the Fouzon River and empties into the Cher River.
28. State in Germany, rich in mineral springs.
29. City where the Iowa State Agricultural College is situated.
30. Lake in the east central part of Celebes, East Indies.
31. Capital of Bolivia.
34. A native dwelling in arctic regions.
37. Village of Smith Co., Tex., near Troupe Station.
38. Least populous state of the United States. (Abbr.)
39. River on which Dresden and Hamburg are located.
40. Cape on coast of Morocco.
41. A French city famous for its Gothic cathedral.
43. First part of the name of an island in the extreme southern portion of the Persian Gulf.
44. Officer of a liner in demand during rough weather. (Abbr.)

VERTICAL

45. Ruined city near Naples.
47. Hamlet in the Shan Tung province of China, fifty miles west of Tsi-nan.
48. Something experienced travelers usually put on their baggage.
49. A thick-soled shoe worn by many European peasants.
51. Italian city on beautiful bay.
52. A river that rises in Diarbekir, flows south through Mesopotamia, and empties into the Euphrates.
1. The capital of Germany.
2. Small town in east central Tibet.
3. Part of the name of a large island south of Australia.
4. State that has contributed seven Presidents.
5. Region of Egyptian Sudan, also name of a desert.
6. Large island of the Inner Hebrides, west of Mull.
7. Principal Egyptian goddess, in honor of whom the village of Eze on the Riviera was named.
8. State of the United States, the greater part of which is a peninsula. (Abbr.)
9. Article often used as part of the name of French towns.
10. Country of which Gustaf V is king.
14. Island southwest of Mull, famous for its ruins.
16. A town in Lombardy, near Padua, named for a celebrated princely house of Italy.
17. Most popular resort city on the European shore of the Mediterranean.
19. Small German village 30 miles north of Munster and 20 miles northwest of Osnabruck.
21. Town in Ceylon, 40 miles southeast of Kandy.
23. Hamlet of Miller Co., Ark., southwest of Fulton.
25. Chain of mountains.
27. First part of French-Indian tribal name, borne by a county in Idaho.
28. A town in East Turkestan, east of Mt. Turgat.
31. Largest city in Europe.
32. An important river that flows through Manchuria and into the channel of Saghalin.
33. Village in French Indo-China, 100 miles northeast of Luang Prabang.
35. Settlement at the southern extremity of the largest of the Western Isles.
36. Small town 120 miles southeastward from Leninograd (Petrograd).
38. The Alaskan port to which dog teams rushed diphtheria serum. (Poss. form).
41. Eternal City.
42. The sacred stream of the Egyptians.
45. A good companion for any voyage.
46. Island of the Cyclades belonging to Greece, 13 miles southwest of Naxos.
48. Bahama island on which Nassau is located. (Abbr.)
50. State founded in 1733 by Oglethorpe. (Abbr.)
53. Small town in central Kentucky, 5 miles north of Taylorsville.

*Answer will appear in May issue of Mentor.



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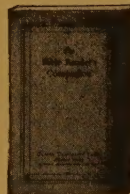
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THE OPEN LETTER



WILLIAM BEEBE, whose name heads this number of *The Mentor*, is a man of extraordinary energy and personal magnetism, a scientist of sound reputation and a writer of real ability. His writing has gone hand in hand with his scientific work, and the world knows him equally well as author and investigator.

He was born in Brooklyn, in July, 1877. His family moved to East Orange, New Jersey, while Beebe was a child, and he received his early education there in the public schools. Then he entered Columbia University, and after graduation made his home in New York.

✦ ✦ ✦

From the beginning his ambition was to become a scientist, and, in his boyhood studies and play, he bent his mind to that purpose. His parents gave him every help and encouragement in his chosen field. As a result of their sympathetic attitude, and his own eager efforts, he acquired some local fame as an ornithologist even before he left school. Then he came to know Professor W. E. D. Scott of Princeton University, and a fellowship developed between them that gave Beebe the advantage of frequent contact with a man trained in scientific investigation. The two tramped together on collecting trips along the slopes of the Orange Mountains, New Jersey, and on expeditions farther afield, notably to Nova Scotia.

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By the time Beebe had graduated from Columbia University he had already become known as an accredited scientist. In

1899 he was appointed curator of birds in the newly created New York Zoological Park. There he really began his scientific-literary career. Expeditions were made to Florida, Mexico, and South America—resulting in books that carried Beebe's name to all quarters of the scientific world.

In 1919 he was appointed the leader of the Kuser-Beebe Pheasant Expedition and sailed for the East, his investigations carrying him through the wilds of India, Borneo, the Malay Peninsula, China, Japan, and to the snowy heights of the Himalayas. The results of that trip are embodied in Mr. Beebe's four-volume "Monograph of the Pheasants," the finest work that has ever been written on that subject—or is likely to be.

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A further turning point in his career was marked by his appointment as Director of the Department of Tropical Research. Headquarters were opened in British Guiana, and expeditions there have been made almost yearly. In the summer of 1923, on the yacht *Noma*, chartered by Mr. Harrison Williams, Mr. Beebe visited the Galápagos Archipelago and brought back a great mass of interesting material, some of which is presented to the readers of *The Mentor* in this number. Mr. Beebe is now on a trip to the Sargasso Sea, that teeming resort in the middle Atlantic where all kinds and forms of sea life foregather. Mr. Beebe can find a whole world of wonderful living things in a pail of sea water. Some time later on he will tell us what he has found in the Sargasso Sea.

W. D. Moffat

• Editor